PROFESSIONAL DIGITAL TWO-WAY RADIO

MOTOTRBO™ XiR™ M8620/XiR™ M8628 NUMERIC DISPLAY MOBILE USER GUIDE

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Notes

Important Safety Information

Product Safety and RF Exposure Compliance

Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with your radio.

ATTENTION!

This radio is restricted to occupational use only to satisfy FCC RF energy exposure requirements. Before using this product, read the RF energy awareness information and operating instructions in the Product Safety and RF Exposure booklet enclosed with your radio (Motorola Publication part number 6804112J96) to ensure compliance with RF energy exposure limits.

For a list of Motorola-approved antennas and other accessories, visit the following website:

http://www.motorolasolutions.com/governmentandenterprise

For Models that are available in Thailand:

อุปกรณ์โทรคมนาคมนี้ได้ปฏิบัติตามข้อกำหนดของคณะกรรมการกิจการโทรคมนาคมแห่งชาติ

This telecommunication equipment conforms to the requirements of the National Telecommunications Commission.

Software Version

All the features described in the following sections are supported by the radio's software version **R02.04.00**.

Please check with your dealer or system administrator for more details of all the features supported.

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This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form.

U.S. Pat. Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

Getting Started

Take a moment to review the following:

How to Use This Guide . . . . . page 1
What Your Dealer/System Administrator Can Tell You . page 1
Powering Up the Radio . . . . . page 2
Adjusting the Volume. . . . . page 2

How to Use This Guide

This User Guide covers the basic operation of the MOTOTRBO Mobiles with Numeric Display.

However, your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

Throughout this publication, the icons below are used to indicate features supported in either the conventional Analog mode or conventional Digital mode:

Indicates a conventional **Analog Mode-Only** feature.

Indicates a conventional **Digital Mode-Only** feature.

For features that are available in **both** Analog and Digital modes, **no** icon is shown.

For features that are available in a conventional multi-site mode, see ***IP Site Connect*** on page 7 for more information.

Selected features are **also** available on the single-site trunking mode, Capacity Plus. See ***Capacity Plus*** on page 7 for more information.

Selected features are **also** available in the multi-site trunking mode, Linked Capacity Plus. See ***Linked Capacity Plus*** on page 8 for more information.

What Your Dealer/System Administrator Can Tell You

You can consult your dealer or system administrator about the following:

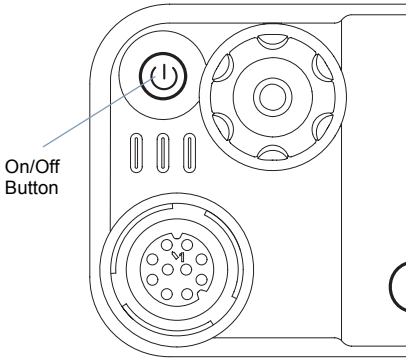
- Is your radio programmed with any preset conventional channels?
- Which buttons have been programmed to access other features?
- What optional accessories may suit your needs?
- What are the best radio usage practices for effective communication?
- What maintenance procedures will help promote longer radio life?

Powering Up the Radio

Press the **On/Off Button** briefly.

The green LED blinks and the numeric display screen lights up.

A brief tone sounds, indicating that the power up test is successful.



NOTE: There is no power up tone if the radio tones/alerts function is disabled (see ***Turning Radio Tones/Alerts On or Off*** on page 34).

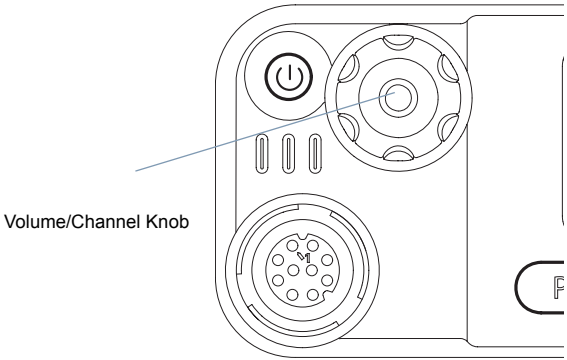
If your radio does not power up, contact your dealer.

To turn off the radio, press and hold the On/Off Button.

NOTE: Your radio may take up to 7 seconds to completely turn off.

Adjusting the Volume

To increase the volume, turn the **Volume/Channel Knob** clockwise.



To decrease the volume, turn this knob counterclockwise.

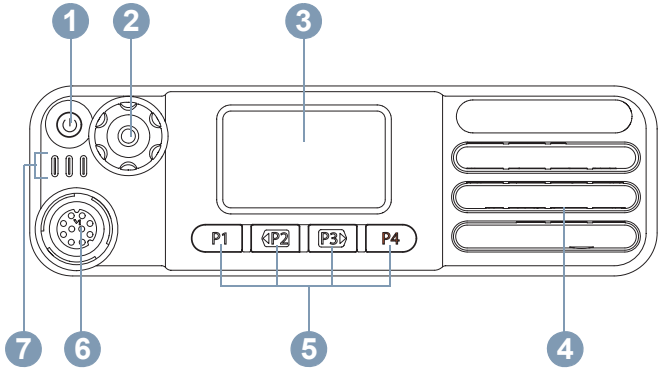
NOTE: Your radio can be programmed to have a minimum volume offset where the volume level cannot be turned past the programmed minimum volume. Check with your dealer or system administrator for more information.

Identifying Radio Controls

Take a moment to review the following:

Radio Controls . . . . . page 3
Programmable Buttons . . . . . page 4
Push-To-Talk (PTT) Button . . . . . page 5
Switching Between Conventional Analog and Digital Mode . . . . . page 6
IP Site Connect . . . . . page 7
Capacity Plus . . . . . page 7
Linked Capacity Plus . . . . . page 8

Radio Controls



1. On/Off Button
2. Volume/Channel Knob
3. Display
4. Speaker
5. Front Programmable Buttons*
6. Accessory Connector
7. LED Indicators

Programmable Buttons

Your dealer can program the programmable buttons as shortcuts to **radio functions** or up to a maximum of six (6) **preset channels/groups** depending on the duration of a button press:

- Short press – Pressing and releasing rapidly.
- Long press – Pressing and holding for the programmed duration.
- Hold down – Keeping the button pressed.

NOTE: The programmed duration of a button press is applicable for all assignable radio/utility functions or settings. See ***Emergency Operation*** on page 22 for more information on the programmed duration of the **Emergency** button.

Assignable Radio Functions

Bluetooth™ Audio Switch – Toggles audio routing between internal radio speaker and external Bluetooth-enabled accessory.

Emergency – Depending on the programming, initiates or cancels an Emergency alarm or call.

Ext PA On/Off – Toggles the audio routing between the connected public address (PA) loudspeaker amplifier and the radio's internal public address (PA) system.

Manual Site Roam*‡ – Starts the manual site search.

Mic AGC On/Off – Toggles the internal microphone automatic gain control (AGC) on or off. Not applicable during a Bluetooth session.

Nuisance Channel Delete*‡ – Temporarily removes an unwanted channel, except for the Selected Channel, from the scan list. The Selected Channel refers to the user's selected zone/channel combination from which scan is initiated.

One Touch Access – Directly initiates a predefined Private or Group Call, a Call Alert or a Quick Text message, or returns the user to a preset channel.

Option Board Feature – Toggles option board feature(s) on or off for option board-enabled channels.

PA On/Off – Toggles the radio's internal public address (PA) system on or off.

Permanent Monitor*‡– Monitors a selected channel for all radio traffic until function is disabled.

Privacy – Toggles privacy on or off.

** Not applicable in Capacity Plus*
‡ Not applicable in Linked Capacity Plus

Repeater/Talkaround*‡ – Toggles between using a repeater and communicating directly with another radio.

Scan*‡ – Toggles scan on or off.

Site Lock On/Off* – Toggles the automatic site roam on or off.

Telemetry Control – Controls the Output Pin on a local or remote radio.

Transmit Interrupt Remote Dekey – Stops an ongoing interruptible call to free the channel.

Voice Operating Transmission (VOX) – Toggles VOX on or off.

Zone – Allows selection from a list of zones.

** Not applicable in Capacity Plus*
‡ Not applicable in Linked Capacity Plus

Assignable Settings/Utility Functions

All Tones/Alerts – Toggles all tones on or off.

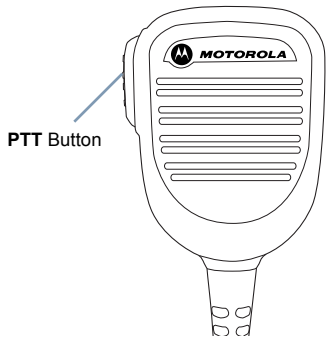
Channel Up/Down – Depending on the programming, changes channel to previous or next channel.

Power Level – Toggles transmit power level between high and low.

Squelch – Toggles squelch level between normal and tight.

Push-To-Talk (PTT) Button

The **PTT** button on the side of the microphone serves two basic purposes:



- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call.

  Press and hold down **PTT** button to talk. Release the **PTT** button to listen.

  The microphone is activated when the **PTT** button is pressed.

- While a call is not in progress, the **PTT** button is used to make a new call (see ***Making a Radio Call*** on page 15).

*Depending on programming, if the Talk Permit Tone or the **PTT** Sidetone is enabled, wait until the short alert tone ends before talking.*

*During a call, if the Channel Free Indication feature is enabled on your radio (programmed by your dealer), you hear a short alert tone the moment the target radio (the radio that is receiving your call) releases the **PTT** button, indicating the channel is free for you to respond.*

You will also hear a continuous talk prohibit tone, if your call is interrupted, indicating that you should release the PTT button, for example when the radio receives an Emergency Call.

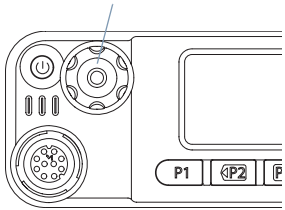
Switching Between Conventional Analog and Digital Mode

Each channel in your radio can be configured as a conventional analog or conventional digital channel.

When switching from digital to analog mode, certain features are unavailable.

To switch between an analog or a digital channel, use the

Volume/Channel Knob



- **Volume/Channel Knob**, or
- programmed **Channel Up** or **Channel Down** buttons

Your radio also has features available in both analog and digital mode. However, the minor differences in the way each feature works does **NOT** affect the performance of your radio.

NOTE: Your radio also switches between digital and analog modes during a dual mode scan (see ***Scan*** on page 19).

To use the programmed **Channel Up** or **Channel Down** buttons, press **Channel Up** or **Channel Down** to select the required channel.

Using the Volume/Channel Knob

The **Volume/Channel Knob** can be programmed as dual purpose for both volume and channel or as a volume-only control.

To adjust volume, see ***Adjusting the Volume*** on page 2.

To change channels, enter the **channel selection state**. Push and hold the knob until you see the display blinking, then turn the knob to the required channel. The display continues blinking until you exit the channel selection state.

To exit channel selection state, do any of the following.

- Push the **Volume/Channel Knob** again
- Wait for the preset timer to expire

IP Site Connect

This feature allows your radio to extend conventional communication beyond the reach of a single site, by connecting to different available sites which are connected via an Internet Protocol (IP) network.

When the radio moves out of range from one site and into the range of another, it connects to the new site's repeater to send or receive calls/data transmissions. Depending on your settings, this is done automatically or manually.

If the radio is set to do this automatically, it scans through all available sites when the signal from the current site is weak or when the radio is unable to detect any signal from the current site. It then locks on to the repeater with the strongest Received Signal Strength Indicator (RSSI) value.

In a manual site search, the radio searches for the next site in the roam list that is currently in range (but which may not have the strongest signal) and locks on to it.

NOTE: Each channel can only have either Scan or Roam enabled, not both at the same time.

Channels with this feature enabled can be added to a particular roam list. The radio searches the channel(s) in the roam list during the automatic roam operation to locate the best site.

A roam list supports a maximum of 16 channels (including the Selected Channel).

NOTE: You cannot manually add or delete an entry to the roam list. Check with your dealer or system administrator for more information.

Capacity Plus

Capacity Plus is a single-site trunking configuration of the MOTOTRBO radio system, which uses a pool of channels to support hundreds of users and up to 254 Groups. This feature allows your radio to efficiently utilize the available number of programmed channels while in Repeater Mode.

You hear a negative indicator tone if you try to access a feature not applicable to Capacity Plus via a programmable button press.

Your radio also has features that are available in conventional digital mode, IP Site Connect, Capacity Plus and Linked Capacity Plus. However, the minor differences in the way each feature works does **NOT** affect the performance of your radio.

Check with your dealer or system administrator for more information on this configuration.

Linked Capacity Plus

Linked Capacity Plus is a multi-site multi-channel trunking configuration of the MOTOTRBO radio system, combining the best of both Capacity Plus and IP Site Connect configurations.

Linked Capacity Plus allows your radio to extend trunking communication beyond the reach of a single site, by connecting to different available sites which are connected via an Internet Protocol (IP) network. It also provides an increase in capacity by efficiently utilizing the combined available number of programmed channels supported by each of the available sites.

When the radio moves out of range from one site and into the range of another, it connects to the new site's repeater to send or receive calls/data transmissions. Depending on your settings, this is done automatically or manually.

If the radio is set to do this automatically, it scans through all available sites when the signal from the current site is weak or when the radio is unable to detect any signal from the current site. It then locks on to the repeater with the strongest Received Signal Strength Indicator (RSSI) value.

In a manual site search, the radio searches for the next site in the roam list that is currently in range (but which may not have the strongest signal) and locks on to it.

Any channel with Linked Capacity Plus enabled can be added to a particular roam list. The radio searches these channels during the automatic roam operation to locate the best site.

NOTE: You cannot manually add or delete an entry to the roam list. Check with your dealer or system administrator for more information.

Similar to Capacity Plus, icons of features not applicable to Linked Capacity Plus are not available in the menu. You hear a negative indicator tone if you try to access a feature not applicable to Linked Capacity Plus via a programmable button press.

Check with your dealer or system administrator for more information on this configuration.

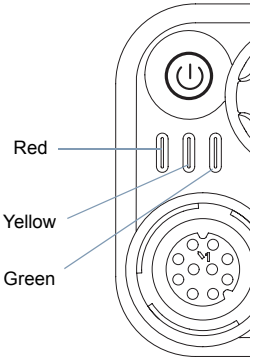
Identifying Status Indicators

Your radio indicates its operational status through the following:

LED Indicators . . . . . page 9
Audio Tones . . . . . page 10
Indicator Tones . . . . . page 10

LED Indicators

LED indicators show the operational status of your radio.



Blinking red – Radio is receiving an emergency transmission or has failed the self-test upon powering up.

Solid green – Radio is powering up, or transmitting.

Blinking green – Radio is receiving a non-privacy-enabled call or data, or detecting activity over the air.

Double blinking green – Radio is receiving a privacy-enabled call or data.

Solid yellow – Radio is monitoring a conventional channel.

Blinking yellow – Radio is scanning for activity or receiving a Call Alert, or all local Linked Capacity Plus channels are busy.

Double blinking yellow – Radio is no longer connected to the repeater while in Capacity Plus or Linked Capacity Plus, all Capacity Plus channels or Linked Capacity Plus channels are currently busy, Auto Roaming is enabled, radio is actively searching for a new site. Also indicates radio has yet to respond to a group call alert, or radio is locked

NOTE: While in conventional mode, when the green LED blinks, it indicates the radio detects activity over the air. Due to the nature of the digital protocol, this activity may or may not affect the radio's programmed channel.

For Capacity Plus and Linked Capacity Plus, there is no LED indication when the radio is detecting activity over the air.

Upon a **PTT** button press, if the radio is programmed for polite operation, the radio automatically determines whether a transmission is permitted via a Talk Permit or a Talk Denial tone.

Indicator Tones

High pitched tone Low pitched tone

Positive Indicator Tone

Negative Indicator Tone

Audio Tones

Alert tones provide you with audible indications of the radio's status or the radio's response to data received.

Continuous Tone A monotone sound. Sounds continuously until termination.

Periodic Tone Sounds periodically depending on the duration set by the radio. Tone starts, stops, and repeats itself.

Repetitive Tone A single tone that repeats itself until it is terminated by the user.

Momentary Tone Sounds only once for a short period of time defined by the radio.

Receiving and Making Calls

Once you understand how your MOTOTRBO Mobile is configured, you are ready to use your radio.

Use this navigation guide to familiarize yourself with the basic Call features:

Selecting a Zone . . . . . page 11
Selecting a Radio Channel, Subscriber ID, or Group ID . . . . . page 12
Receiving and Responding to a Radio Call . . . . . page 12
Making a Radio Call . . . . . page 15
Stopping a Radio Call . . . . . page 17
Talkaround . . . . . page 18
Permanent Monitor . . . . . page 18

Selecting a Zone

A zone is a group of channels. Your radio supports up to a maximum of 2 zones, with a maximum of 99 channels per zone.

Procedure:

1. Press the programmed **Zone** button.
2. You hear a positive indicator tone, indicating the radio has switched from Zone 1 to Zone 2.
   OR
   You hear a negative indicator tone, indicating the radio has switched from Zone 2 to Zone 1.

Selecting a Channel

Transmissions are sent and received on a channel. Depending on your radio's configuration, each channel may have been programmed differently to support different groups of users or supplied with different features. After selecting the required zone, select the channel you require to transmit or receive on.

Procedure:

Once the required zone is set (if you have multiple zones in your radio), use the **Volume/Channel Knob** in channel selection state to select the number that represents the required channel.

OR

Press the programmed **Channel Up** or **Channel Down** button to select the number that represents the required channel.

OR

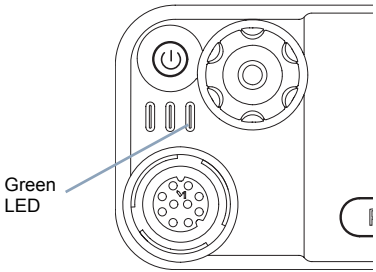
Press the programmed **One Touch Access** button to select the preset channel assigned to the button.

*See **Selecting a Zone** on page 11 for more information on selecting your required zone.*

Receiving and Responding to a Radio Call

Once the channel, subscriber ID, or group ID is set, you can proceed to receive and respond to calls.

The green LED lights up while the radio is transmitting and blinks when the radio is receiving.



NOTE: The green LED lights up while the radio is transmitting and double blinks rapidly when the radio is receiving a privacy-enabled call.

To unscramble a privacy-enabled call, your radio must have the same Privacy Key, OR the same Key Value and Key ID (programmed by your dealer) as the transmitting radio (the radio you are receiving the call from).

See ***Privacy*** on page 27 for more information.

Receiving and Responding to a Group Call

To receive a call made to a group of users, your radio must be configured as part of that group.

Procedure:

When you receive a Group Call:

1. The green LED blinks. Your radio unmutes and the incoming call sounds through the radio's speaker.

   If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
   Press the **PTT** button to respond to the call.
   OR

   If the Voice Interrupt feature is enabled, press the **PTT** button to stop the current call from the transmitting radio and free the channel for you to talk/respond.
2. The green LED lights up.
3. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
   OR

   Wait for the **PTT** Sidetone to finish (if enabled) and speak clearly into the microphone.
4. Release the **PTT** button to listen.
5. If there is no voice activity for a predetermined period of time, the call ends.

*See **Making a Group Call** on page 15 for details on making a Group Call.*

Receiving and Responding to a Private Call

A Private Call is a call from an individual radio to another individual radio.

Procedure:

When you receive a private call:

1. The green LED blinks. Your radio unmutes and the incoming call sounds through the radio's speaker.
2. If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
   Press the **PTT** button to respond to the call.
   OR
   If the Voice Interrupt feature is enabled, press the **PTT** button to stop the current call from the transmitting radio and free the channel for you to talk/respond.
3. The green LED lights up.
4. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

5 Release the **PTT** button to listen.

6 If there is no voice activity for a predetermined period of time, the call ends.

7 You hear a short tone.

*See **Making a Private Call** on page 16 for more details on making a private call.*

Receiving an All Call

An All Call is a call from an individual radio to every radio on the channel. It is used to make important announcements requiring the user's full attention.

Procedure:

When you receive an All Call:

1 A tone sounds and the green LED blinks. Your radio unmutes and the incoming call sounds through the radio's speaker.

2 Once the All Call ends, the radio returns to the previous screen before receiving the call. An All Call does not wait for a predetermined period of time before ending.

If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is now available for use.

You cannot respond to an All Call.

NOTE: The radio stops receiving the All Call if you switch to a different channel while receiving the call.
During an All Call, you are **not** able to use any programmed button functions until the call ends.

Receiving and Responding to a Selective Call

A Selective Call is a call from an individual radio to another individual radio. It is a Private Call on an analog system.

Procedure:
When you receive a Selective Call:

1 The green LED blinks. Your radio unmutes and the incoming call sounds through the radio's speaker.

2 If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
Press the **PTT** button to respond to the call.

3 The LED lights up solid green.

4 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

5 Release the **PTT** button to listen.

6 If there is no voice activity for a predetermined period of time, the call ends.

7 You hear a short tone.

See ***Making a Selective Call*** on page 17 for details on making a Selective Call.

Making a Radio Call

After selecting your channel, you can select a subscriber alias or ID, or group alias or ID by using:

- **Volume/Channel Knob**
- A programmed **One Touch Access** button

NOTE: Your radio must have the Privacy feature enabled on the channel to send a privacy-enabled transmission. Only target radios with the same Privacy Key OR the same Key Value and Key ID as your radio is are able to unscramble the transmission.

See ***Privacy*** on page 27 for more information.

The One Touch Access feature allows you to make a Group, or Private Call to a predefined ID easily. This feature can be assigned to a short or long programmable button press.You can **ONLY** have one ID assigned to a **One Touch Access** button. Your radio can have multiple **One Touch Access** buttons programmed.

Making a Group Call

To make a call to a group of users, your radio must be configured as part of that group.

Procedure:

1 Select the channel with the active group alias or ID. See ***Selecting a Channel*** on page 12.
OR
Press the programmed **One Touch Access** button.

2 Press the **PTT** button to make the call. The green LED lights up.

3 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
OR
Wait for the **PTT** Sidetone to finish (if enabled) and speak clearly into the microphone.

4 Release the **PTT** button to listen. When the target radio responds, the green LED blinks.

5 If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond.
OR
If there is no voice activity for a predetermined period of time, the call ends.

Making a Private Call

While you can receive and/or respond to a Private Call initiated by an authorized individual radio, your radio must be programmed for you to initiate a Private Call.

There are two types of Private Calls. The first type, where a radio presence check is performed prior to setting up the call, while the other sets up the call immediately.

Only **one** of these call types can be programmed to your radio by your dealer.

You hear a negative indicator tone, when you make a Private Call via the **One Touch Access** button or the **Scroll Up/Down** buttons, if this feature is not enabled.

Use the Quick Text Message or Call Alert features to contact an individual radio. See ***Text Messaging Features*** on page 26 or ***Call Alert Operation*** on page 22 for more information.

Procedure:

1. Select the channel with the active radio alias or ID. See ***Selecting a Channel*** on page 12.
   OR
   Press the programmed **One Touch Access** button.
2. Press the **PTT** button to make the call. The green LED lights up.
3. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
4. Release the **PTT** button to listen. When the target radio responds, the green LED blinks.
5. If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond.
   OR
   If there is no voice activity for a predetermined period of time, the call ends.
6. You hear a short tone.

Making an All Call

This feature allows you to transmit to all users on the channel. Your radio must be programmed to allow you to use this feature.

Procedure:

1. Select the channel with the active group alias or ID. See ***Selecting a Channel*** on page 12.
2. Press the **PTT** button to make the call. The green LED lights up.
3. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
   OR
   Wait for the **PTT** Sidetone to finish (if enabled) and speak clearly into the microphone.

Users on the channel cannot respond to an All Call.

Making a Selective Call

Just like a Private Call, while you can receive and/or respond to a Selective Call initiated by an authorized individual radio, your radio must be programmed for you to initiate a Selective Call.

Procedure:

1. Select the channel with the active group alias or ID. See ***Selecting a Channel*** on page 12.
2. Press the **PTT** button to make the call. The green LED lights up.
3. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
4. Release the **PTT** button to listen. When the target radio responds, the green LED blinks.
5. If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond.
   OR
   If there is no voice activity for a predetermined period of time, the call ends.
6. You hear a short tone.

Stopping a Radio Call

This feature allows you to stop an ongoing Group or Private Call to free the channel for transmission. For example, when a radio experiences a “stuck microphone” condition where the **PTT** button is inadvertently pressed by the user.

Your radio must be programmed to allow you to use this feature.

Procedure:

While on the required channel:

1. Press the programmed **Transmit Interrupt Remote Dekey** button.
2. Wait for acknowledgment.
3. The radio sounds a positive indicator tone, indicating that the channel is now free.
   OR
   The radio sounds a negative indicator tone, indicating that the radio is unable to free the channel.

*Your radio sounds a negative indicator tone until you release the **PTT** button, if it is transmitting an interruptible call that is stopped via this feature. On an interrupted radio with a display, the display shows* `Call Interrupted`.

Talkaround

You can continue to communicate when your repeater is not operating, or when your radio is out of the repeater's range but within talking range of other radios. This is called "talkaround".

NOTE: This feature is not applicable in Capacity Plus and Linked Capacity Plus.

Procedure:

1. Press the programmed **Repeater/Talkaround** button.
2. You hear a positive indicator tone, indicating the radio is in Talkaround mode.
   OR
   You hear a negative indicator tone, indicating the radio is in Repeater mode.

The Talkaround setting is retained even after powering down.

Permanent Monitor

Use the Permanent Monitor feature to continuously monitor a selected channel for activity.

NOTE: This feature is not applicable in Capacity Plus and Linked Capacity Plus.

Procedure:

1. Press the programmed **Permanent Monitor** button.
2. Radio sounds alert tone, and the yellow LED lights up.
3. Press the programmed **Permanent Monitor** button to remove the radio from permanent monitor mode.
4. Radio sounds an alert tone and the yellow LED turns off.

Advanced Features

Use this navigation guide to learn more about advanced features available with your radio:

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Scan . . . . . page 19
Call Indicator Settings . . . . . page 21
Call Alert Operation . . . . . page 22
Emergency Operation . . . . . page 22
Text Messaging Features . . . . . page 26
Privacy . . . . . page 27
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Scan Lists

Scan lists are created and assigned to individual channels/groups. Your radio scans for voice activity by cycling through the channel/group sequence specified in the scan list for the current channel.

Your radio supports up to 250 scan lists, with a maximum of 16 members in a list. Each scan list shall support a mixture of both analog and digital entries.

NOTE: This feature is not applicable in Capacity Plus and Linked Capacity Plus.

Scan

When you start a scan, your radio cycles through the programmed scan list for the current channel looking for voice activity. The yellow LED blinks.

During a dual mode scan, if you are on a digital channel, and your radio locks onto an analog channel, it automatically switches from digital mode to analog mode for the duration of the call. This is also true for the reverse.

There are two types of scans:

- **Main Channel Scan (Manual)**: Your radio scans all the channels/groups in your scan list. On entering scan, your radio may – depending on the settings – automatically start on the last scanned “active” channel/group or on the channel where scan was initiated.
- **Auto Scan (Automatic)**: Your radio automatically starts scanning when you select a channel/group that has Auto Scan enabled.

NOTE: This feature is not applicable in Capacity Plus and Linked Capacity Plus.

Starting and Stopping Scan

Procedure:

1. Press the programmed **Scan** button.
   OR
   Use the **Volume/Channel Knob** or **Channel Up/Down** buttons to select a channel with Auto Scan enabled.
2. When Scan is enabled, the yellow LED blinks and you hear a positive indicator tone.
   OR
   When Scan is disabled, the LED turns off and you hear a negative indicator tone.

Responding to a Transmission During a Scan

During scanning, your radio stops on a channel/group where activity is detected. The radio stays on that channel for a programmed time period known as “hang time”.

Procedure:

1. If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
2. Press the **PTT** button during hang time. The green LED lights up.
3. Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
   OR
   Wait for the **PTT** Sidetone to finish (if enabled) and speak clearly into the microphone.
4. Release the **PTT** button to listen.
5. If you do not respond within the hang time, the radio returns to scanning other channels/groups.

Deleting a Nuisance Channel

If a channel continually generates unwanted calls or noise (termed a “nuisance” channel), you can temporarily remove the unwanted channel from the scan list.

This capability does not apply to the channel designated as the Selected Channel.

Procedure:

1. When your radio “locks on to” an unwanted or nuisance channel, press the programmed **Nuisance Channel Delete** button until you hear a tone.
2. Release the **Nuisance Channel Delete** button. The nuisance channel is deleted.

Restoring a Nuisance Channel

Procedure:
To restore the deleted nuisance channel, do **one** of the following:

- Turn the radio off and power it on again, **OR**
- Stop and restart a scan via the programmed **Scan** button, **OR**
- Change the channel via the **Volume/Channel Knob** or **Channel Up/Down** buttons.

Vote Scan

Vote Scan provides you with wide area coverage in areas where there are multiple base stations transmitting identical information on different analog channels.

Your radio scans analog channels of multiple base stations and performs a voting process to select the strongest received signal. Once that is established, your radio unmutes to transmissions from that base station.

The yellow LED blinks during Vote Scan.

*To respond to a transmission during a Vote Scan, follow the same procedures as **Responding to a Transmission During a Scan** on page 20.*

Call Indicator Settings

You can turn on or off the ringing tones for a received Private Call (see ***Turning Radio Tones/Alerts On or Off*** on page 34).

Escalating Alarm Tone Volume

Your radio can be programmed by your dealer to continually alert you when a radio call remains unanswered. This is done by automatically increasing the alarm tone volume over time.

This feature is known as Escalert.

Call Alert Operation

Call Alert paging enables you to alert a specific radio user to call you back when they are able to do so.

This feature is accessible via a programmed **One Touch Access** button.

Receiving and Responding to a Call Alert

Procedure:

When you receive a Call Alert page:

1. You hear a repetitive tone. The yellow LED blinks.
2. Press the **PTT** button within four (4) seconds of receiving a Call Alert page to respond to the Private Call.

Making a Call Alert with the One Touch Access Button

Procedure:

1. Press the programmed **One Touch Access** button to make a Call Alert to the predefined ID.
2. The green LED lights up when your radio is sending the Call Alert.
3. If the Call Alert acknowledgement is received, two chirps sound.
   OR
   If the Call Alert acknowledgement is not received, a low-pitched tone sounds.

Emergency Operation

An Emergency Alarm is used to indicate a critical situation. You are able to initiate an Emergency at any time, in any state, even when there is activity on the current channel.

Your dealer can set the duration of a button press for the programmed **Emergency** button, except for long press, which is similar with all other buttons:

- Short press – Between 0.05 seconds and 0.75 seconds
- Long press – Between 1.00 second and 3.75 seconds

The **Emergency** button is assigned with the Emergency On/ Off feature. Check with your dealer for the assigned operation of the **Emergency** button.

*If short press the **Emergency** button is assigned to turn on the Emergency mode, then long press the **Emergency** button is assigned to exit the Emergency mode.*

*If long press the **Emergency** button is assigned to turn on the Emergency mode, then short press the **Emergency** button is assigned to exit the Emergency mode.*

Your radio supports **three** Emergency Alarms:

- Emergency Alarm
- Emergency Alarm with Call
- Emergency Alarm with Voice to Follow

In addition, each alarm has the following types:

- **Regular** – Radio transmits an alarm signal and shows audio and/or visual indicators.
- **Silent** – Radio transmits an alarm signal without any audio or visual indicators. Radio receives calls without any sound through the radio's speaker, until you press the **PTT** button to initiate the call.
- **Silent with Voice** – Radio transmits an alarm signal without any audio or visual indicators, but allow incoming calls to sound through the radio's speaker.

Only **one** of the Emergency Alarms above can be assigned to the programmed **Emergency** button or the **Emergency** footswitch.

Sending an Emergency Alarm

This feature allows you to send an Emergency Alarm, a non-voice signal, which triggers an alert indication on a group of radios.

Procedure:

1. Press the programmed **Emergency On** button or the **Emergency** footswitch.
2. The green LED lights up.
3. When an Emergency Alarm acknowledgment is received, the Emergency tone sounds. The green LED blinks.
   OR
   If your radio does not receive an Emergency Alarm acknowledgement, and after all retries have been exhausted, a low-pitched tone sounds.
4. Radio exits the Emergency Alarm mode.

If your radio is set to Silent, it does not display any audio or visual indicators during Emergency mode.

Sending an Emergency Alarm with Call

This feature allows you to send an Emergency Alarm to a group of radios. Upon acknowledgement by a radio within the group, the group of radios can communicate over a programmed Emergency channel.

Procedure:

1. Press the programmed **Emergency On** button or press the **Emergency** footswitch.
2. The green LED lights up.
3. When an Emergency Alarm acknowledgment is received, the Emergency tone sounds. The green LED blinks.
4. Press the **PTT** button to make the call. The green LED lights up.

5 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
OR
Wait for the **PTT** Sidetone to finish (if enabled) and speak clearly into the microphone.

6 Release the **PTT** button to listen.

7 When the channel is free for you to respond, a short alert tone sounds (if the Channel Free Indication feature is enabled). Press the **PTT** button to respond.
OR
Once your call ends, press the programmed **Emergency Off** button to exit the Emergency mode.

*If your radio is set to Silent, it does not display any audio or visual indicators during Emergency mode, or allow any received calls to sound through the radio's speaker, until you press the **PTT** button to initiate the call.*

*If your radio is set to Silent with Voice, it does not display any audio or visual indicators during Emergency mode, but allow incoming calls to sound through the radio's speaker. The indicators only appear once you press the **PTT** button to initiate, or respond to, the call.*

Sending an Emergency Alarm with Voice to Follow

This feature allows you to send an Emergency Alarm to a group of radios. Your radio's microphone is automatically activated, allowing you to communicate with the group of radios without pressing the **PTT** button.

This activated microphone state is also known as "hot mic".

If your radio has Emergency Cycle Mode enabled, repetitions of hot mic and receiving period are made for a programmed duration.

NOTE: During Emergency Cycle Mode, received calls sound through the radio's speaker.

If you press the **PTT** button during the programmed receiving period, you will hear a prohibit tone, indicating that you should release the PTT. The radio ignores the **PTT** press and remains in Emergency mode.

NOTE: If you press the **PTT** button during hot mic, and continue to press it after the hot mic duration expires, the radio continues to transmit until you release the **PTT** button.

Procedure:

1 Press the programmed **Emergency On** button or the **Emergency** footswitch.

2 The green LED lights up.

3 Once a tone sounds, speak clearly into the microphone. When hot mic has been enabled, the radio automatically transmits without a **PTT** press until the hot mic duration expires.
While transmitting, the green LED lights up.

4 The radio automatically stops transmitting when:
Once the cycling duration between hot mic and receiving calls expires, if Emergency Cycle Mode is enabled.
OR
Once the hot mic duration expires, if Emergency Cycle Mode is disabled.

5 To transmit again, press the **PTT** button.
OR
Press the programmed **Emergency Off** button to exit the Emergency mode.

6 Once the hot mic duration expires, the radio automatically stops transmitting. To transmit again, press the **PTT** button.

*If your radio is set to Silent, it does not display any audio or visual indicators during Emergency mode, or allow any received calls to sound through the radio's speaker, until the programmed hot mic transmission period is over, and you press the **PTT** button.*

*If your radio is set to Silent with Voice, it does not display any audio or visual indicators during Emergency mode when you are making the call with hot mic, but allow sound through the radio's speaker when the target radio responds after the programmed hot mic transmission period is over. The indicators only appear when you press the **PTT** button.*

NOTE: If the Emergency Alarm request fails, the radio does not retry to send the request, and enters the hot mic state directly.

Reinitiating an Emergency Mode

NOTE: This feature is only applicable to the radio sending the Emergency Alarm.

There are two instances where this can happen:

- You change the channel while the radio is in Emergency mode. This exits the Emergency mode. If Emergency Alarm is enabled on this new channel, the radio reinitiates Emergency.
- You press the programmed **Emergency On** button during an Emergency initiation/transmission state. This causes the radio to exit this state, and to reinitiate Emergency.

Exiting an Emergency Mode

NOTE: This feature is only applicable to the radio sending the Emergency Alarm.

Your radio exits Emergency mode when **one** of the following occurs:

- Emergency Alarm acknowledgement is received (for **Emergency Alarm** only), **OR**

- An Emergency Exit Telegram is received, **OR**
- All retries to send the alarm have been exhausted, **OR**
- The **Emergency Off** button is pressed.

NOTE: If your radio is powered off, it exits the Emergency mode. The radio does not reinitiate the Emergency mode automatically when it is turned on again.

Text Messaging Features

Sending a Quick Text Message

You can send Quick Text messages, programmed by your dealer, via the programmable button.

Procedure:

1. Press the programmed **One Touch Access** button to send a predefined Quick Text message to a predefined ID.
2. The green LED lights up.
3. Two chirps indicate that the message is sent successfully.
   OR
   A low-pitched tone indicates that the message cannot be sent.

Privacy

If enabled, this feature helps to prevent eavesdropping by unauthorized users on a channel by the use of a software-based scrambling solution. The signaling and user identification portions of a transmission are not scrambled.

Your radio must have privacy enabled on the channel to send a privacy-enabled transmission, although this is not a necessary requirement for receiving a transmission. While on a privacy-enabled channel, the radio is still able to receive clear (unscrambled) transmissions.

Your radio supports Enhanced Privacy. To unscramble a privacy-enabled call or data transmission, your radio must be programmed to have the same Key Value and Key ID as the transmitting radio.

If your radio receives a scrambled call that is of a different Key Value and Key ID, you will hear nothing at all.

The LED lights up solid green while the radio is transmitting and blinks green rapidly when the radio is receiving an ongoing privacy-enabled transmission.

NOTE: Some radio models/locations may not offer this Privacy feature. Check with your dealer or system administrator for more information.

Procedure:
Press the programmed **Privacy** button to toggle privacy on or off.

Multi-Site Controls

These features are applicable when your current radio channel is part of an IP Site Connect or Linked Capacity Plus configuration.

See **IP Site Connect** on page 7 and **Linked Capacity Plus** on page 8 for more details about these configurations.

Starting an Automatic Site Search

NOTE: The radio **only** scans for a new site if the current signal is weak or when the radio is unable to detect any signal from the current site. If the RSSI value is strong, the radio remains on the current site.

Procedure:

1. Press the programmed **Site Lock On/Off** button.
2. A tone sounds.
3. The yellow LED blinks rapidly when the radio is actively searching for a new site, and turns off once the radio locks on to a site.

*The radio also performs an automatic site search (site is unlocked) during a **PTT** button press or data transmission if the current channel, a multi-site channel with an attached roam list, is out of range.*

Stopping an Automatic Site Search

When the radio is actively searching for a new site:

Procedure:

1. Press the programmed **Site Lock On/Off** button.
2. A tone sounds and the LED turns off.

Starting a Manual Site Search

Procedure:

1. Press the programmed **Manual Site Roam** button.
2. A tone sounds and the green LED blinks.
3. You hear a positive indicator tone and the LED turns off, indicating the radio is locked on to a site.
   OR
   You hear a negative indicator tone and the LED turns off, indicating the radio is unable to lock on to a site.

Lone Worker

This feature prompts an emergency to be raised if there is no user activity, such as any radio button press or activation of the channel selector, for a predefined time.

Following no user activity for a programmed duration, the radio pre-warns the user via an audio indicator once the inactivity timer expires.

If there is still no acknowledgment by the user before the predefined reminder timer expires, the radio initiates an Emergency Alarm.

Only **one** of the following Emergency Alarms is assigned to this feature:

- Emergency Alarm
- Emergency Alarm with Call
- Emergency Alarm with Voice to Follow

The radio remains in the emergency state allowing voice messages to proceed until action is taken. See ***Emergency Operation*** on page 22 on ways to exit Emergency.

This feature is limited to radios with this function enabled. Check with your dealer or system administrator for more information.

Password Lock Features

If enabled, this feature allows you to access your radio via password upon powering up.

Accessing the Radio from Password

Procedure:
Power up the radio.

1. You hear a continuous tone.
2. Press the **Scroll Up/Down** buttons to select a digit and Front Button **P2** to enter the selected digit. Enter the remaining digits of the password in the same manner.
3. When the last digit of the four-digit password is entered, your radio automatically checks the validity of the password.
   If the password is correct:
   Your radio proceeds to power up. See ***Powering Up the Radio*** on page 2.
   OR
   If the password is incorrect:
   You hear a continuous tone. Repeat Steps 1 and 2.
   OR
   After the third incorrect password, your radio enters into locked state. A tone sounds and the yellow LED double blinks.

*Your radio enters into locked state for 15 minutes, and responds to inputs from **On/Off** button.*

NOTE: The radio is unable to receive any call, including emergency calls, in locked state.

The use of **Emergency** footswitch cancels out password input to access the radio.

Unlocking the Radio from Locked State

Procedure:
Wait for 15 minutes. Repeat Steps 1 to 3 in ***Accessing the Radio from Password*** on page 29.
OR
Power up the radio, if you have powered down the radio during locked state:

1. A tone sounds and the yellow LED double blinks.
2. Wait for 15 minutes. Repeat Steps 1 to 3 in ***Accessing the Radio from Password*** on page 29.

Your radio restarts the 15 minutes timer for locked state when you power up.

Bluetooth

This feature allows you to use your radio with a Bluetooth-enabled device (accessory) via a Bluetooth connection. Your radio supports both Motorola and Commercially available Off-The-Shelf (COTS) Bluetooth-enabled devices.

Bluetooth operates within a range of 10 meters line of sight. This is an unobstructed path between your radio and your Bluetooth-enabled device.

It is not recommended that you leave your radio behind and expect your Bluetooth-enabled device to work with a high degree of reliability when they are separated.

At the fringe areas of reception, both voice and tone quality will start to sound "garbled" or "broken". To correct this problem, simply position your radio and Bluetooth-enabled device closer to each other (within the 10-meter defined range) to re-establish clear audio reception. Your radio's Bluetooth function has a maximum power of 2.5 mW (4 dBm) at the 10-meter range.

Your radio can support up to 3 simultaneous Bluetooth connections with Bluetooth-enabled devices of unique types. For example, a headset, a scanner, and a PTT-Only Device (POD). Multiple connections with Bluetooth-enabled devices of the same type are not supported.

Refer to your respective Bluetooth-enabled device's user manual for more details on your Bluetooth-enabled device's full capabilities.

Finding and Connecting to a Bluetooth Device

Procedure:

1. Turn on your Bluetooth-enabled device and place it in pairing mode. Refer to respective Bluetooth-enabled device's user manual.
2. On your radio, press the programmed **Bluetooth Connect** button.
3. A tone sounds and LED blinks yellow.
4. Your Bluetooth-enabled device may require additional steps to complete the pairing. Refer to respective Bluetooth-enabled device's user manual.
5. If successful, a positive tone sounds.
   OR
   If unsuccessful, a negative indicator tone sounds.

Do not turn off your Bluetooth-enabled device during the finding and connecting operation as this cancels the operation.

Your radio connects to the Bluetooth-enabled device within range with either the strongest signal strength, or to one which it has connected to before in a prior session.

NOTE: A pin code may be required to be programmed in your radio before it can pair with some devices. Contact your dealer for more information.

Disconnecting from a Bluetooth Device

Procedure:

1. Press the programmed **Bluetooth Disconnect** button.
2. A positive indicator tone sounds when disconnected.

Switching Audio Route

You can toggle audio routing between internal radio speaker and external Bluetooth-enabled accessory.

Procedure:

1. Press the programmed **Bluetooth Audio Switch** button.
2. A tone sounds when the audio route has switched.

Utilities

Setting the Squelch Level

You can adjust your radio's squelch level to filter out unwanted calls with low signal strength or channels that have a higher than normal background noise.

Settings: Normal is the default. **Tight** filters out (unwanted) calls and/or background noise. However, calls from remote locations may also be filtered out.

Procedure:

1. Press the programmed **Squelch** button.
2. You hear a positive indicator tone, indicating the radio is operating in tight squelch.
   OR
   You hear a negative indicator tone, indicating the radio is operating in normal squelch.

Setting the Power Level

You can customize your radio's power setting to high or low for each channel.

Settings: High enables communication with radios located at a considerable distance from you. **Low** enables communication with radios in closer proximity.

Procedure:

1. Press the programmed **Power Level** button.
2. You hear a positive indicator tone, indicating the radio is transmitting at low power.
   OR
   You hear a negative indicator tone, indicating the radio is transmitting at high power.

Turning the Option Board Feature(s) On or Off

A channel can support up to 6 option board features. Refer to your dealer or system administrator for more information.

Procedure:
Press the programmed **Option Board Feature** button to toggle the feature on or off.

Turning the Voice Operating Transmission (VOX) Feature On or Off

This feature allows you to initiate a hands-free voice activated call on a programmed channel. The radio automatically transmits, for a programmed period, whenever the microphone on the VOX-capable accessory detects voice.

NOTE: You may need to turn off the radio and power it up again after detaching the VOX-capable microphone to allow the radio to switch to another valid accessory.

Pressing the **PTT** button during radio operation disables VOX. To re-enable VOX, do **one** of the following:

- Turn the radio off and power it on again, **OR**
- Change the channel via the **Scroll Up/Down** buttons, **OR**
- Change the channel via the **Volume/Channel Knob**, **OR**
- Follow the procedure below.

NOTE: Turning this feature on or off is limited to radios with this function enabled. Check with your dealer or system administrator for more information.

Procedure:
Press the programmed **VOX** button to toggle the feature on or off.

If the Talk Permit Tone feature is enabled, use a trigger word to initiate the call. Wait for the Talk Permit Tone to finish before speaking clearly into the microphone.

Turning the Public Address System On or Off

You can enable and disable the radio's internal public address (PA) system.

Procedure:
Press the programmed **PA On/Off** button to toggle the feature on or off.

Turning the External Public Address System On or Off

You can enable or disable the audio routing between the connected public address (PA) loudspeaker amplifier and the radio's internal public address (PA) system.

Procedure:
Press the programmed **Ext PA On/Off** button to toggle the feature on or off.

Turning Horns/Lights On or Off

Your radio is able to notify you of an incoming call via the horns and lights feature. When activated, an incoming call sounds your vehicle's horn and turns on its lights.

This feature needs to be installed through your radio's rear accessory connector by your dealer.

Procedure:

1 Press the programmed **Horns/Lights** button.

2 You hear a positive indicator tone, indicating the horns and lights feature is on.
OR
You hear a negative indicator tone, indicating the horns and lights feature is off.

Turning Radio Tones/Alerts On or Off

You can enable and disable all radio tones and alerts (except for the incoming Emergency alert tone) if needed.

Procedure:

1 Press the programmed **All Tones/Alerts** button.

2 You hear a positive indicator tone, indicating all tones and alerts are on.
OR
You hear a negative indicator tone, indicating all tones and alerts are off.

Voice Announcement

This feature enables the radio to audibly indicate the current Zone or Channel the user has just assigned, or programmable button press. This audio indicator can be customized per customer requirements. This is typically useful when the user is in a difficult condition to read the content shown on the display.

Use the following features to toggle Voice Announcement on or off.

Procedure:

Press the programmed **Voice Announcement** button.

Intelligent Audio

Your radio automatically adjusts its audio volume to overcome current background noise in the environment, inclusive of both stationary and non-stationary noise sources. This feature is a Receive-only feature and does not affect Transmit audio.

NOTE: *This feature is not applicable during a Bluetooth session.*

Use the following features to toggle Intelligent Audio on or off.

Procedure:

Press the programmed **Intelligent Audio** button to toggle the feature on or off.

*See **Accessories** on page 36 for recommended Bluetooth-enabled audio accessories with in-built Automatic Volume Control for similar performance.*

GPS

Global Positioning System (GPS) is a satellite navigation system that determines the radio's precise location.

Procedure:

Press the programmed **GPS** button to toggle the feature on or off.

Accessories

Your radio is compatible with the accessories listed in this chapter. Contact your dealer for details.

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Audio . . . . . page 37
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Desktop Accessories . . . . . page 38
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Antennas

- VHF, 136 – 144 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4198_)
- VHF, 146 – 150.8 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4199_)
- VHF, 150.8 – 162 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4200_)
- VHF, 162 – 174 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4201_)
- UHF, 403 – 527 MHz, 2dB Gain, Through-hole Mount, BNC (HAE6021_)
- UHF, 403 – 430 MHz, 1/4 Wave, Through-hole Mount, BNC (RAE4151_)
- UHF, 450 – 470 MHz, 1/4 Wave, Through-hole Mount, BNC (RAE4152_)
- UHF, 450 – 470 MHz,5dB Gain, Through-hole Mount, BNC (RAE4154_)
- UHF, 406 – 420 MHz, 3.5dB Gain, Through-hole Mount, BNC (RAE4158_)
- Combination GPS/VHF 136 – 144 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4219_)
- Combination GPS/VHF 146 – 150.8 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4220_)
- Combination GPS/VHF 150.8 – 162 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4221_)
- Combination GPS/VHF 162 – 174 MHz, 1/4 Wave, Through-hole Mount, BNC (RAD4222_)
- Combination GPS/UHF 403 – 527 MHz, 2dB Gain, Through-hole Mount, BNC (HAE6017_)
- Combination GPS/UHF 403 – 430 MHz, 1/4 Wave, Through-hole Mount, BNC (PMAE4035_)
- Combination GPS/UHF 406 – 420 MHz, 3.5dB Gain, Through-hole Mount, BNC (PMAE4036_)
- Combination GPS/UHF 450 – 470 MHz, 1/4 Wave, Through-hole Mount, BNC (PMAE4037_)

- Combination GPS/UHF 450 – 470 MHz, 5dB Gain, Through-hole Mount, BNC (PMAE4038_)
- Fixed Mount GPS Active Antenna (PMAN4000_)
- Window Mount GPS Active Antenna (PMAN4001_)
- Magnetic Mount GPS Active Antenna (PMAN4002_)

Audio

- Telephone Style Handset (HMN4098_)
- Desktop Microphone (RMN5050_)
- Compact Microphone (RMN5052_)
- Heavy Duty Microphone with Enhanced Audio (RMN5053_)
- Visor Microphone with Enhanced Audio (RMN5054_)
- Operations Critical Wireless earpiece, 12" Cable (NNTN8125_)
- Operations Critical Wireless earpiece, 9.5" Cable (NNTN8126_)
- Operations Critical Wireless Push-to-Talk POD (NNTN8127_)
- HK200 Bluetooth Headset with US Plug (89409N)
- HK200 Bluetooth Headset with UK Plug (ASMHK200VP-GB2A)
- HK200 Bluetooth Headset with Euro Plug (ASMHK200-GB3A)
- HK200 Bluetooth Headset with Korea Plug (ASMHK200-KR2A)
- HK200 Bluetooth Headset with China Plug (ASMHK200-CN2A)
- HK200 Bluetooth Headset with Australia Plug (ASMHK200-AU2A)

Cables

- Power Cable to Battery, 10-foot (3-meter) Cable, 15 amp (1 – 25 Watt) (HKN4137_)
- Power Cable to Battery, 10-foot (3-meter) Cable, 20 amp (1 – 45 Watt) (HKN4191_)
- Power Cable to Battery, 20-foot (6-meter) Cable, 20 amp (1 – 45 Watt) (HKN4192_)
- Mobile and Repeater Rear Accessory Connector Universal Cable (PMKN4018_)
- Ignition Sense Cable (RKN4136_)
- Mobile Mic Extension Cable, 10 feet (PMKN4033_)
- Mobile Mic Extension Cable, 20 feet (PMKN4034_)

Desktop Accessories

- Desktop Tray without Speaker (GLN7318_)
- Desktop Tray with Speaker (RSN4005_)
- US Line Cord (3060665A04)
- Switchmode Power Supply 1–25 Watt Models (GPN6145_)
- Radio Power Cable for GPN6145_ (GKN6266_)
- Power Supply and Cable (HPN4007_)
- Hardware Kit for Rear Accessory Connector (PMLN5072_)

Mounting Kits

- In Dash (DIN) Mounting Kit (RLN6465_)
- Low Profile Trunnion Kit (RLN6466_)
- High Profile Trunnion Kit (RLN6467_)
- Key Lock Trunnion Kit (RLN6468_)

Speakers

- 13-Watt External Speaker (RSN4002_)
- 7.5-Watt External Speaker (RSN4003_)
- 5-Watt External Speaker (RSN4004_)

Miscellaneous Accessories

- PL259/Mini-U Antenna Adapter, 8-foot (2.4-meter) Cable (HKN9557_)
- Microphone Hang Up Clip (All Microphones) (HLN9073_)
- Universal Microphone Hang Up Clip (All Microphones) (HLN9414_)
- Push Button PTT (RLN5926_)
- Emergency Footswitch (RLN5929_)

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